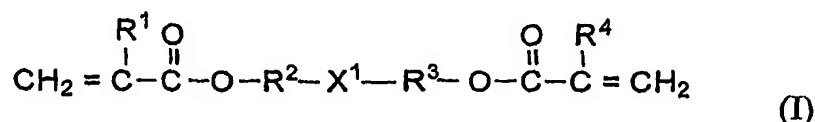


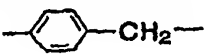
WHAT IS CLAIMED IS:

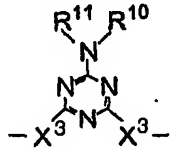
1. A photopolymerizable composition which comprises 1) an acryl- or methacryl-based compound of formula (I), 2) a binder which is a sol-gel solution obtained from a siloxane precursor of formula (II) or a transparent polymeric resin, and 3) a photoinitiator:

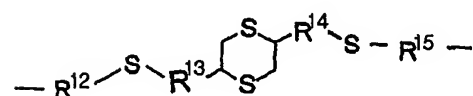


10 wherein:

R<sup>1</sup> and R<sup>4</sup> are each independently hydrogen or CH<sub>3</sub>;

R<sup>2</sup> and R<sup>3</sup> are each independently R<sup>5</sup> or  $(\text{R}^5\text{-O})_n\text{-}\overset{\text{O}}{\underset{||}{\text{C}}}\text{-X}^2\text{-R}^6$  (R<sup>5</sup> and R<sup>6</sup> are each independently C<sub>1-10</sub> alkylene, arylene, -OCH<sub>2</sub>CH<sub>2</sub>-, -SCH<sub>2</sub>CH<sub>2</sub>- or -CH<sub>2</sub>-; and n is an integer in the range of 1 to 10); and

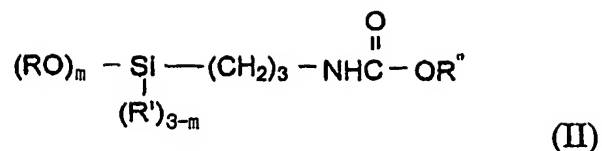
15  $\text{X}^1$  is O, S, SO<sub>2</sub>,  $\text{-}\overset{\text{O}}{\underset{||}{\text{C}}}\text{-}$ ,  $\text{-}\overset{\text{S}}{\underset{|}{\text{P}}}\text{-R}^7$ ,  $\text{-}\overset{\text{R}^9}{\underset{|}{\text{C}}}\text{-R}^8$ ,  or



(X<sup>2</sup> and X<sup>3</sup> are each independently O or S;

R<sup>7</sup> is C<sub>1-10</sub> alkylthioether, phenyl,  $\text{-X}^4\text{-}\langle\text{ring}\rangle\text{-X}^5$ ,  $\langle\text{ring}\rangle\text{-X}^5$  or

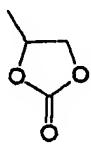
20  $\text{-X}^4\text{-}\langle\text{ring}\rangle\text{-X}^5$ ; X<sup>4</sup> is O, S, CH<sub>2</sub> or SCH<sub>2</sub>; X<sup>5</sup> is SCH<sub>3</sub>, OCH<sub>3</sub> or phenyl; R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup> and R<sup>11</sup> are each independently H, C<sub>1-10</sub> alkyl, C<sub>3-10</sub> cyclic alkyl, phenyl, benzyl or CF<sub>3</sub>; and R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup> and R<sup>15</sup> are each independently C<sub>1-10</sub> alkylene).



wherein:

R and R' are each independently C<sub>1-10</sub> alkyl or phenyl;

R'' is R or -(R-O)<sub>p</sub>-Y;

- 5 Y is R', CF<sub>3</sub>, SO<sub>2</sub>CH<sub>3</sub> or  ;  
 p is an integer in the range of 1 to 10; and  
 m is 0, 1, 2 or 3.

- 10 2. The photopolymerizable composition of claim 1 which comprises 1 to 80% by weight of the component 1), 19.99 to 98% by weight of the component 2) and 0.01 to 10% by weight of the component 3).

- 15 3. The photopolymerizable composition of claim 1, wherein the sol-gel solution is prepared by sol-gel reacting the siloxane precursor of formula (II) and tetraalkoxysilane in the presence of a basic catalyst.

- 20 4. The photopolymerizable composition of claim 1, wherein the transparent polymeric resin is selected from the group consisting of polyolefins, polystyrenes, polycarbonates, polyurethanes, polysulfones, polyacrylates and mixtures thereof

- 25 5. The photopolymerizable composition of claim 1 which comprises the transparent polymeric resin as a binder and further comprises at least one solvent which is selected from the group consisting of chloroform, dichloromethane, tetrahydrofuran, N-methylpyrrolidone, methylsulfoxide, N,N-dimethylacetamide, dioxane, alcohols, benzene, ethylene glycol dimethyl ether, acetonitrile and water.

- 30 6. The photopolymerizable composition of claim 1, wherein the photoinitiator is selected from the group consisting of Irgacure 184, Irgacure

784, a metallocene catalyst, Darocure, acridine, phenazine, quinoxaline and a mixture thereof.

5 7. A photopolymerizable film which is prepared by coating the composition of claim 1 on a substrate and drying the coating at room temperature to 130 °C for 30 min to 14 days.

8. An optical product obtained by irradiating a light to one part or all of the film of claim 7.